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Patent Application

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patents

Applicant: **Vernon George Houle**

Application No. **10/727,284**

Filing Date: **December 3, 2003**

Title: **Method of Controlling movement on the inside and around the outside of a facility**

Art Unit: **2636**

Examiner: **Jennifer A. Stone**

### Declaration in Support of Registration of a Patent

I, **Vernon Robert Austen**, of **Edmonton, Alberta** Make Oath and Say:

1. I am a Professional Engineer, a summary of my qualifications is attached
2. I am familiar with the Applicant's technology and have, from time to time, been asked to render technical assistance relating to the manufacture of components needed to implement the technology.
3. I have had the opportunity to review the Examiner's Report dated December 14, 2005 and in particular the "Response to Remarks" portion of the Report.
4. I can advise the Examiner that there are differences between the Applicant's technology and the "proximity card reader" described in paragraph 0029 of the McIntock et al

reference.

5. I agree with the Examiner to the extent that at a single point of access the two technologies will behave in a similar manner.
6. The Applicant's technology creates an invisible perimeter. It does not interrogate people moving within the invisible perimeter, only people about to cross a boundary of that perimeter. Within a facility, it happens that the only way to cross a boundary of the perimeter is by walking through a doorway (which may or may not have a physical barrier such as a door).
7. The difference between the two technologies is most apparent when one compares how they operate in an open area or outside on the grounds of a facility. In such a situation, there are infinite points of access. There is no place to position a single proximity card reader. The Applicant's system monitors the perimeter of the open area. This could be the perimeter of a courtyard, garden area, or property boundary. To get the same effect with the technology McIntock et al describes, one would have to position proximity card readers every four to five feet around a perimeter, which would hardly be practical.
8. The closest technology that I am aware of to this aspect of the Applicant's system relates to pet containment systems that administer miniature "shocks" to a dog if he attempts to cross a boundary. In this regard, I have reproduced for the Examiner the applicable page from the website [www.petsafe.net](http://www.petsafe.net).
9. I am swearing this declaration to provide a response by one skilled in the art to the analysis of the Examiner.

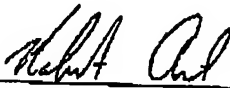
The undersigned being hereby warned that wilful false statement and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, declares that all statements made

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of his own knowledge are true and all statements made on information and belief are believed to be true.

Dated this 10th day of February 2006.

  
Vernon Robert Austen



**ROBERT AUSTEN, P. Eng., B. Sc.**

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Edmonton, Alberta  
T6J 7B3  
Home: (780) 438-2811

## **EMPLOYMENT HISTORY**

April 2005  
to present

**Senior Hardware Engineer**  
**Willowglen Systems Inc., Edmonton**

Participating in team development of dual redundant Distributed Control System for Chinese power plants. Responsible for most assembler and low level or system level C software, including device drivers, kernel code, boot initialisation:

Responsible for adapting linux 2.4.21 for use in real time distributed control on EP9302 (arm9) based CPU cards. Developed method of synchronising the 1ms timer interrupts to within 10µs system wide over 802.1Q VLAN. Adapted linux time related/sensitive system calls (e.g. nanosleep, select) to support hard real time. Rewrote drivers to use DMA where possible. Wrote /proc/pid/mem mmap method to allow data sharing between threads of different process groups (main database threads have R/W access to child user IEC programs, but only R/O in reverse).

Responsible for I/O card firmware for use on AT91SAM7S64 (arm7) based I/O cards, namely the dual 6Mbps backplane channels, and time sync method compatible with above CPU cards. Developed the USB interface between the I/O backplane channel masters through to the device driver on the CPU cards.

September 2004  
to present

**Senior Software Engineer, Part Time**  
**Austec Electronics New Zealand, Auckland**

Part time co-designer of Stolen Vehicle Recovery system for Austec Electronics New Zealand. The car alarm unit included a radio tracking transmitter and pager receiver. Wrote the PIC16F627A embedded firmware. Wrote the PIC18F2220 decoding software for the tracking receivers, and the serial interface between the receivers and the GPRS modems. Wrote (in C for the Mac OS X) the TCP/IP interface between the GPRS modems and the HTTP Apache Web interface to FileMaker.

March 2004  
to April 2005

**Senior Design Engineer**  
**CoreLab, PROMORE Division, Edmonton**

Designed a casing inspection and collar location downhole tool based on magnetic induction imaging good to 200°C. Designed the digital hardware based on the TI TMS320F28x processor (contributed a number of TI errata), writing the embedded firmware in C. Designed the analog hardware including the power supplies and power supply sequencing, the transmitter differential coil driver, the receiver GMR differential amplifiers and filtering, with digitally controlled gain from 30 to 90dB, and an electronic fuse circuit that would "open" at a preset current ranging from 1A to 2A, and remain open with a holding current under 1mA.

Designed a physical layer for OOK modulated communication system supporting both intertool data traffic using deviceNet (CAN) and high speed toolstring download using traditional async protocol (RS232), over a single (power) wire, good to 1Mbps at to 200°C.

Rewrote a service for polling field equipment, connected to the internet via 1X or CDPD modems, and writing the data into an MS Access database through MS SQL, to run 24/7 on the MS Windows 2003 file server. The software was written in C using MS Visual Studio.

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January 2001  
to March 2004

**Design Engineer**  
**AMC Technologies Corporation, Edmonton**

Ported uCLinux (linux for MMUless processors) kernels 2.0.38 and 2.4.17 to dimmPCI platform, family of single board computers, of which was co-designer, based on MC68VZ328 processor with RT8019 ethernet, SJA1000 CAN controller. Designer of Flash ROM device driver, PCI extensions, USB OHCI support, CRAM filesystem, shared memory support and bootstrap supporting compressed kernel. Developed intermodule networking using Ethernet packets over a PCI I2O transport layer. Designed new dimmPCI2 PPC405GPr based hardware.

Designer of PIC16F630 and PIC18F6520 firmware for WanderComm. Designed the 315 and 433 MHz SAW based transmitter and antenna.

Redesigned and completed the timber measurement system for Risley Manufacturing (Grande Prairie), to measure length and approximate diameters and volumes of wood, based on a PC104 stack including an embedded 486 running VX works. Rewrote the custom quadrature input card and the custom digital input card firmware in Altera AHDL. Performed the integration testing for Weyerhaeuser on Vancouver Island.

Co-designer of web based power monitoring system, contributing to electronic design, layout, testing. Designed the protocol for bi-directional communication over SPI interface; writing the MC68HC908 firmware.

Co-designer of industrial flow meter, writing the firmware in C with high precision floating point extensions in PIC16C877 Assembly language.

June 2000  
to January 2001

**RF & Embedded Software Designer**  
**Datek Industries, Edmonton**

Developed real-time SceniX PBX firmware for Bombardier.

Designer of miniature 900MHz direct sequence Spread Spectrum and narrow band FSK radio transmitters and receivers.

August 1998  
to May 2000

**Systems Designer**  
**Milltronics Sherrex Systems Division, Edmonton**

Designer of industrial, credit card sized, 14.4kbps modem module, with DPRAM based 'Anybus' parallel host interface. Developed on board MC68332 protocol support hardware and software. Obtained American, Canadian and European regulatory approvals (for telecommunications, safety and electromagnetic compatibility).

December 1995  
to February 1998

**Senior Digital & Software Engineer**  
**Pegasus Electronic Design Inc., Edmonton**

Co-designer of Precision Timing / Tracking System for Electronic Tracking Systems (New Zealand) for horse racing. Specifically developed various mathematical models and corresponding real-time floating point software. Designed the high speed digital interfaces and counter FPGAs for measuring the Doppler phase shifts.

Co-designer of Lazer Runner interactive tag game for Ascension Productions. Players are tagged using modulated laser beams and communicate with a central game controlling PC via a radio link. Specifically designed the digital hardware, the real-time game PC software, the i8051 embedded firmware and the PIC encoders and decoders for the optical and radio links.

Co-designer of Video Controller for Commonwealth Stadium scoreboard to simultaneously output and preview motion video input and animations from PDP11 computers. Specifically designed the real-time PC software, the PC to PDP11 DMA interface and an FPGA based PC to lamp bank DMA interface.

April 1993  
to November 1995

**Senior Digital & Software Engineer**  
**AutoTrac Technology Ltd. and**  
**Austec Electronic Systems Ltd., Edmonton**

Co-designer of Stolen Vehicle Recovery system for Altech Transportation Information Systems (South Africa). The car alarm unit included a radio tracking transmitter and pager receiver. Coded the i8051 embedded firmware and designed the digital sections and the load dump protected power supply. Designed the i80186 & ADSP2105 decoding and filtering software for the tracking receivers. Developed the production test fixtures and provided the initial manufacturing support at Caramatech (South Africa) and SMT (Singapore).

November 1991  
to September 1992

**Computer Programmer**  
**Lee Tool Wire Line Service, Red Deer**

Contributed to the production data logging software, notably the writing of a compiler to allow data calibration and flexible data manipulation in the field in real-time.

May 1987  
to June 1991

**Computer Engineer**  
**Industra Lube Testing Labs, Edmonton**

Designer of a multi-user multi-tasking lab computer system including a sophisticated data base, interfaces to the lab instrumentation, and a telecommunications interface to remote maintenance planning computer systems used by their larger clients. Design of the remote planning computer systems.

## **TECHNICAL SKILLS**

accomplished C programmer (including hard real time)  
accomplished Assembly programmer (Intel x86 and 8051, ARM,  
IBM PPC, Microchip/ SceniX PIC, Motorola M68K and HCx08,  
AD ADSP21xx, TI TMS320, Zilog Z80, Rockwell R6502)  
accomplished Linux device driver and kernel level programmer  
accomplished digital and analog circuit designer  
accomplished VHDL/AHDL FPGA designer (Actel, Altera)  
accomplished at PCB layout (Protel 99SE, PADS, Orcad)  
experienced in RF design, measurement, testing and trouble shooting  
experienced in technical writing and formal specifications

## EDUCATIONAL ACHIEVEMENTS

April 1988	<b>Bachelor of Science, Computer Engineering</b> with <b>First Class Standing</b> three of four years University of Alberta, Edmonton
June 1984	<b>Advanced High School Diploma, with Excellence</b> and <b>International Baccalaureate Diploma</b> Harry Ainlay High School, Edmonton
1988	Finalist, ACM Scholastic Programming Contest, Atlanta
1984	Alberta Heritage Foundation for Medical Research Award
1984	Award of Merit - Sir Isaac Newton Prize Examination in Physics
1984	Award of Merit - CIC Chemistry Contest
1984	Award of Excellence, MAA Math Contest
1983	Awards of Excellence, MAA, Euclid and Fermat Math Contests
1982	First Place in Alberta, Fourth in Canada, Fermat Math Contest

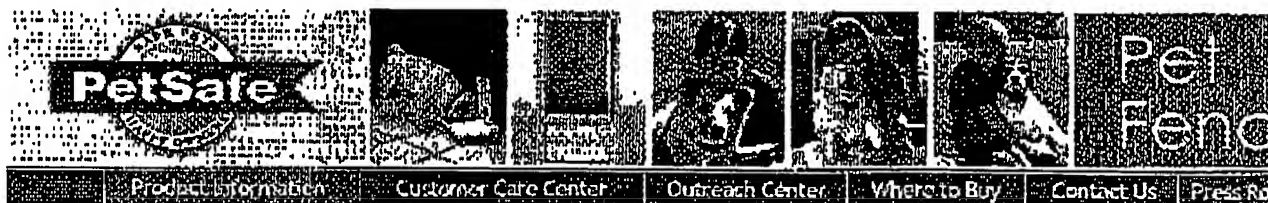
## OTHER INTERESTS

family: wife and preschool son  
citizenship: Canadian and British  
languages: French, German  
music: flute, bagpipes, trombone, piano  
sports: soccer, épée fencing, skiing, cycling, ballroom dancing (20+ years)  
math: differential tensor calculus  
physics: quantum chromodynamics, nuclear weapons design  
other: stock market investing (10+ years), multiplayer computer games

## REVISION CONTROL

February 2006	latest version, 5 pages
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Deluxe In-Ground Fence
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Comfort-Fit In-Ground Deluxe Fence System
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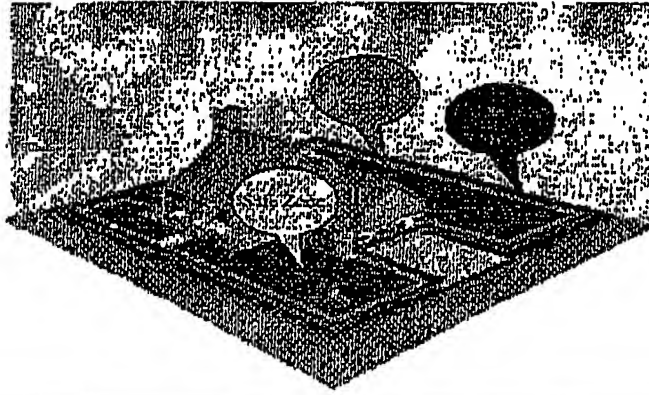
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